

REMARKS

The Office Action mailed April 4, 2005, has been received and reviewed. Claims 1 through 29 are currently pending in the application, of which claims 1 through 29 are currently under examination. Claims 10 through 29 are withdrawn from consideration as being drawn to a non-elected invention. Applicants herein acknowledge the restriction requirement in the above-referenced application, and affirm the election to prosecute the claims of Group I, claims 1 through 9, without further traverse. Claims 1 through 9 stand rejected. Applicants have amended claim 1, and respectfully request reconsideration of the application as amended herein.

35 U.S.C. § 102(b) Anticipation Rejections**Anticipation Rejection Based on U.S. Patent No. 5,136,349 to Yilmaz et al.**

Claims 1, 2, 5 and 7 through 9 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yilmaz et al. (U.S. Patent No. 5,136,349). Applicants respectfully traverse this rejection, as hereinafter set forth.

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

Applicants submit that the Yilmaz reference does not and cannot anticipate under 35 U.S.C. § 102 the presently claimed invention of presently amended independent claim 1 and claims 2-9 depending therefrom, because the Yilmaz reference does not describe, either expressly or inherently, the identical inventions in as complete detail as are contained in the claims.

Amended Independent Claim 1 and Claims 2, 5, 7-9 Depending Therefrom

The Office Action alleges:

With regard to claims 1 and 5, Yilmaz et al. disclose a closed cell transistor with built-in votage clamp (col. 4, line 34 to col. 10, line 45 and fig. 3), comprising:

Spaced-apart source 48a and drain 48b regions formed in the substrate 60 (fig. 3a);

Channel region 64 defined between the source 48a and drain 48b regions (col. 5, line 51 and fig. 3a);

A layer of gate oxide 74 formed over at least a part of the channel region 64 (col. 5, lines 19-20 and fig. 3a);

A gate 46 formed over the layer gate oxide 74, the gate 46 further having at least one implant aperture formed (fig. 3a), the channel region 64 of the substrate 60 further including a channel internal implanted (enhancement) region 40 between the source 48a and drain 48b regions (col. 5, lines 60-65 and fig. 3a). (Office Action, pp. 2-3; emphasis added).

Applicants respectfully disagree that the Yilmaz reference anticipates Applicants' invention as claimed in amended independent claim 1 which reads:

1. A threshold-adjusted transistor, comprising:
a substrate including:
spaced-apart source and drain regions formed in the substrate; and
a channel region defined between the source and drain regions;
a layer of gate oxide formed over at least a part of the channel region; and
a gate formed over the layer of gate oxide, the gate further having at least one implant aperture formed therein, the channel region of the substrate further including a channel internal implanted region between the source and drain regions, ***the spaced-apart source and drain regions and the gate forming a transistor planar with the substrate.*** (Emphasis added.)

In contrast, the Yilmaz reference discloses:

The active device as shown includes the conventional P+ type deep body regions 48a, 48b flanked by P type body regions 68a, 68b, 68c, 68d. It is understood that ***regions 48a, 48 b are actually one region joined outside the plane of the drawing to form an annular structure.*** (Col. 5, lines 8-13; emphasis added.)

[A]s shown in FIGS. 3A and 3B, the breakdown of the device will always occur around the P+ type clamp junction region 40 rather than at the active device cell region 42. (Col. 5, lines 62-65).

[A]s shown in FIG. 3A, ***the P+ type clamping region together with the N-type region 64 and the P+ type substrate 60 form a PNP bipolar junction transistor.*** (Col. 5, line 66 through col. 6, line 1).

Clearly, the Yilmaz reference discloses a device on a substrate, however, there are no “***spaced-apart source and drain regions and the gate forming a transistor planar with the substrate***” as claimed by Applicants. Since Yilmaz admits “***that regions 48a, 48 b are actually one region joined outside the plane of the drawing to form an annular structure***”, the only

formation of spaced-apart source and drain regions would need be, as admitted by Yilmaz, the “*the P+ type clamping region . . . and the P+ type substrate 60*” which is perpendicular to the direction of the substrate.

Therefore, amended independent claim 1, and claims 2-9 depending therefrom, are not anticipated by the Yilmaz reference under 35 U.S.C. § 102. Accordingly, such claims are allowable over the cited prior art and Applicants respectfully request that such rejections be withdrawn.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 5,136,349 to Yilmaz et al.

Claims 3 and 6 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yilmaz et al. (U.S. Patent No. 5,136,349). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 3 and 6 are improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Claims 3 and 6

Regarding claims 3 and 6, which depends from amended independent claim 1, Applicants sustain the above-proffered arguments that Yilmaz does not teach, disclose or motivate Applicants’ invention as claimed in amended independent claim 1. The Office Action alleges:

With regard to claims 3 and 6, Yilmaz et al. disclose a channel internal implanted region 40 (fig. 3a), but do not disclose a lightly doped structure. However, Yilmaz et al. teach the region 40 becomes a diffusion source and, naturally, the substrate is then subjected to a diffusing process (col. 8, lines 44-54). Thus, a lightly doped structure would be formed around the channel internal implanted regions 40. (Office Action , p. 4)

Regardless of any teachings, disclosure or lack thereof to a lightly doped structure, Applicants sustain the above arguments that Yilmaz lacks any teaching or suggestion of “*spaced-apart source and drain regions and the gate forming a transistor planar with the substrate*” as claimed by Applicants. Furthermore, since Yilmaz admits “*that regions 48a, 48 b are actually one region joined outside the plane of the drawing to form an annular structure*”, the only formation of spaced-apart source and drain regions would need be, as admitted by Yilmaz, the “*the P+ type clamping region . . . and the P+ type substrate 60*” which is perpendicular to the direction of the substrate.

Therefore, claims 3 and 6 depending from amended independent claim 1 are not rendered obvious according to 35 U.S.C. § 103 since the Yilmaz reference does not teach, disclose, or motivate Applicants’ invention as claimed in independent claim 1 as amended. Accordingly, such claims are allowable over the cited prior art and Applicants respectfully request that such rejections be withdrawn.

Additionally, the nonobviousness of independent claim 1 precludes a rejection of claim 3 and 6 which depend therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore also on this basis, the Applicants further request that the Examiner accordingly withdraw the 35 U.S.C. § 103 obviousness rejection to dependent claims 3 and 6.

Obviousness Rejection Based on U.S. Patent No. 5,136,349 to Yilmaz et al. in view U.S. Patent No. 5,136,349 to Lai et al.

Claim 4 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Yilmaz et al. (U.S. Patent No. 5,136,349) in view of Lai et al.(U.S. Patent No. 6,649,461). Applicants respectfully traverse this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference (or references when combined) must teach or suggest all the claim limitations.** The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejection of claim 4 is improper because the elements for a *prima facie* case of obviousness are not met. Specifically, the rejection fails to meet the criterion that the prior art reference must teach or suggest all the claims limitations.

Claim 4

Regarding claim 4, which depends from amended independent claim 1, Applicants sustain the above-proffered arguments that Yilmaz does not teach, disclose or motivate Applicants' invention as claimed in amended independent claim 1. The Office Action introduces the Lai reference and alleges:

With regard to claim 4, Yilmaz et al. do not disclose the double-diffused structure 40 is implanted at a diagonal angle to the gate through the implant aperture. However, Lai et al. disclose an angle implant (Lai col. 8, lines 28-36 and fig. 4). Lai et al. teach the angle implant would reduce or eliminate the effects of narrow channel impurity diffusion to surrounding region of insulation (Lai col. 5, lines 48-51), which could cause the hot-carrier effect of the transistor (Lai col. 4, lines 20-35). Yilmaz et al. and Lai et al. have substantially the same environment of transistor having an oxide layer under the gate. Therefore, it would have been obvious for the one with ordinary skill in the art to modify Yilmaz's device with the teachings of Lai et al. to provide the angle implant through the gate implant aperture in order to avoid damaging the gate insulation. (Office Action, p. 4).

Regardless of any teachings, disclosure or lack thereof to a double-diffused structure, Applicants respectfully submit that neither the Yilmaz reference nor the Lai reference, either individually or in any proper combination, teach, disclose or motivate Applicants' invention as claimed in amended independent claim 1 from which claim 4 depends, namely of "*spaced-apart source and drain regions and the gate forming a transistor planar with the substrate*" as

claimed by Applicants. Again, since Yilmaz admits “*that regions 48a, 48 b are actually one region joined outside the plane of the drawing to form an annular structure*”, the only formation of spaced-apart source and drain regions would need be, as admitted by Yilmaz, the “*the P+ type clamping region . . . and the P+ type substrate 60*” which is perpendicular to the direction of the substrate.

Therefore, claim 4 depending from amended independent claim 1 is not rendered obvious according to 35 U.S.C. § 103 since neither the Yilmaz reference nor the Lai reference teaches, discloses, or motivates Applicants’ invention as claimed in dependent claim 4. Accordingly, such claim is allowable over the cited prior art and Applicants respectfully request that such rejections be withdrawn.

Additionally, the nonobviousness of independent claim 1 precludes a rejection of claim 4 which depends therefrom because a dependent claim is obvious only if the independent claim from which it depends is obvious. *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988), *see also* MPEP § 2143.03. Therefore, the Applicants further request that the Examiner accordingly withdraw the 35 U.S.C. § 103 obviousness rejection to dependent claim 4.

CONCLUSION

The amendments to claim 1 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application. Further, the amendments do not raise new issues or require a further search.

Claims 1-9 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, he is respectfully invited to contact Applicants' undersigned attorney.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'K. Johanson', with a long horizontal flourish extending to the right.

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